CLAIMS

What is claimed is:

1. A communication device comprising:

an aperture structure; and

deflectors deflecting respective electromagnetic signals of respective wavelengths at respective angles, the electromagnetic signals passing through the aperture structure.

2. A device of Claim 1 further comprising an aperture linear/circular polarization device between at least one of the deflectors and the aperture structure.

3. A device of Claim 1 wherein at least one of the deflectors is movable.

4. A device of Claim 1 wherein the deflectors form a first stack, a deflector in the first stack passing a signal deflected by another deflector in the first stack.

5. A device of Claim 4 wherein at least one deflector in the first stack deflects substantially all signals within a wavelength band.

6. A device of Claim 5 wherein individual deflectors in the first stack deflect substantially all signals each within its respective non-overlapping wavelength band and pass signals deflected by other deflectors in the first stack.

7. A device of Claim 6 wherein at least one of the deflectors in the first stack is movable and reflects signals at nearly normal incidence.

8. A device of Claim 6 wherein the deflectors in the first stack are reflectors.

9. A device of Claim 6 further comprising a second stack of deflectors deflecting respective electromagnetic signals passing through the aperture structure at respective angles, individual deflectors in the second stack deflecting substantially all signals each within its respective non-overlapping wavelength band and passing signals deflected by other deflectors in the second stack.

10. A device of Claim 9 wherein at least one second stack deflectors' wavelength band is located between two first stack deflectors' wavelength bands and at least one first stack deflectors' wavelength band is located between two second stack deflectors' wavelength bands.

11. A device of Claim 4 wherein individual deflectors in the first stack pass signals deflected by other deflectors in the first stack.

12. A device of Claim 4 further comprising:

a first polarization beam splitter coupled to the aperture structure and the first stack;

a signal path coupled to the first polarization beam splitter; and

a first linear/circular polarization device, positioned so that electromagnetic signals deflected by at least one of the deflectors in the first stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the first linear/circular polarization device and, after being deflected, first pass through the first linear/circular polarization device and then pass through the first polarization beam splitter, the deflectors in the first stack being reflectors.

13. A device of Claim 12 further comprising:

a first transmission path; and

a first reception path, the signal path receiving from the first transmission path at least one signal carrying communications transmitted by the device and the first reception path receiving from the signal path at least one signal carrying communications received by the device, the electromagnetic signals deflected by at least one of the deflectors in the first stack carrying communications transmitted by the device and communications received by the device.

14. A device of Claim 12 wherein at least one of the deflectors in the first stack is movable.

15. A device of Claim 12 further comprising:

a second stack of deflectors deflecting respective electromagnetic signals passing through the aperture structure at respective angles, the individual deflectors in the first stack passing signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack, the deflectors in the second stack being reflectors; and

a second linear/circular polarization device, positioned so that electromagnetic signals deflected by at least one of the deflectors in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the second linear/circular polarization device and, after being deflected, first pass through the second linear/circular polarization device and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first linear/circular polarization device being substantially orthogonal, within the signal path, to the direction of polarization of the electromagnetic signals passing through the second linear/circular polarization device.

16. A device of Claim 15 further comprising:

a second polarization beam splitter coupled to the signal path;

a first transmission path;

a first reception path;

a second transmission path;

a second reception path;

a first polarized path coupled to the second polarization beam splitter; the first polarized path receiving from the first transmission path at least one signal carrying communications transmitted by the device and the first reception path receiving from the first polarized path at least one signal carrying communications received by the device; and

a second polarized path coupled to the second polarization beam splitter; the second polarized path receiving from the second transmission path at least one signal carrying communications transmitted by the device and the second reception path receiving from the second polarized path at least one signal carrying communications received by the device.

17. A device of Claim 4 further comprising:

a first polarization beam splitter coupled to the aperture structure and the first stack;

a signal path coupled to the first polarization beam splitter; and

a first polarization rotation device, positioned so that electromagnetic signals deflected by at least one of the deflectors in the first stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the first polarization rotation device and, after being deflected, first pass through the first polarization rotation device and then pass through the first polarization beam splitter, the deflectors in the first stack being reflectors.

18. A device of Claim 17 further comprising:

a first transmission path; and

a first reception path, the signal path receiving from the first transmission path at least one signal carrying communications transmitted by the device and the first reception path receiving from the signal path at least one signal carrying communications received by the device, the electromagnetic signals deflected by at least one of the deflectors in the first stack carrying communications transmitted by the device and communications received by the device.

19. A device of Claim 17 wherein at least one of the deflectors in the first stack is movable.

20. A device of Claim 17 further comprising:

a second stack of deflectors deflecting respective electromagnetic signals passing through the aperture structure at respective angles, the individual deflectors in the first stack passing signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack, the deflectors in the second stack being reflectors; and

a second polarization rotation device, positioned so that electromagnetic signals deflected by at least one of the deflectors in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the second polarization rotation device and, after being deflected, first pass through the second polarization rotation device and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first polarization rotation device being substantially orthogonal,

within the signal path, to the direction of polarization of the electromagnetic signals passing through the second polarization rotation device.

21. A device of Claim 20 further comprising:

a second polarization beam splitter coupled to the signal path;

a first transmission path;

a first reception path;

a second transmission path;

a second reception path;

a first polarized path coupled to the second polarization beam splitter; the first polarized path receiving from the first transmission path at least one signal carrying communications transmitted by the device and the first reception path receiving from the first polarized path at least one signal carrying communications received by the device; and

a second polarized path coupled to the second polarization beam splitter; the second polarized path receiving from the second transmission path at least one signal carrying communications transmitted by the device and the second reception path receiving from the second polarized path at least one signal carrying communications received by the device.

22. A device of Claim 17 further comprising:

a second stack of deflectors deflecting respective electromagnetic signals passing through the aperture structure at respective angles, the individual deflectors in the first stack passing signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack, the deflectors in the second stack being reflectors; and

a linear/circular polarization device, positioned so that electromagnetic signals deflected by at least one of the deflectors in the second stack, are

deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the linear/circular polarization device and, after being deflected, first pass through the linear/circular polarization device and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first polarization rotation device being substantially orthogonal, within the signal path, to the direction of polarization of the electromagnetic signals passing through the linear/circular polarization device.

23. A device of Claim 4 further comprising a second stack of deflectors deflecting respective electromagnetic signals passing through the aperture structure at respective angles, at least one deflector in the second stack passing at least one signal deflected by another deflector in the second stack.

24. A device of Claim 23 wherein individual deflectors in the first stack pass signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack.

25. A device of Claim 23 further comprising a polarization beam splitter coupled to the first stack, second stack, and the aperture structure.

26. A device of Claim 1 wherein electromagnetic signals deflected by at least one of the deflectors carry communications transmitted by the device and communications received by the device.

27. A device of Claim 1 wherein the aperture structure is a telescope.

28. A device for deflecting electromagnetic waves comprising:

a first deflector deflecting electromagnetic waves within a first wavelength band and passing electromagnetic waves within a second wavelength band; and

a second deflector deflecting electromagnetic waves within a second wavelength band, the second deflector positioned to receive the electromagnetic waves passed through the first deflector.

29. A method for communication comprising:

passing of electromagnetic signals by an aperture structure; and

deflecting respective electromagnetic signals of respective wavelengths at respective angles by deflectors.

30. A method of Claim 29 further comprising changing type of polarization of electromagnetic signals using an aperture linear/circular polarization device positioned between at least one of the deflectors and the aperture structure.

31. A method of Claim 29 wherein at least one of the deflectors is movable.

32. A method of Claim 28 wherein the deflectors form a first stack, a deflector in the first stack passing a signal deflected by another deflector in the first stack.

33. A method of Claim 32 wherein at least one deflector in the first stack deflects substantially all signals within a wavelength band.

34. A method of Claim 33 wherein individual deflectors in the first stack deflect substantially all signals each within its respective non-overlapping wavelength band and pass signals deflected by other deflectors in the first stack.

35. A method of Claim 34 wherein at least one of the deflectors in the first stack is movable and reflects signals at nearly normal incidence.

36. A method of Claim 34 wherein the deflectors in the first stack are reflectors.

37. A method of Claim 34 further comprising:

deflecting respective electromagnetic signals passing through the aperture structure at respective angles using a second stack of deflectors, individual deflectors in the second stack deflecting substantially all signals each within its respective non-overlapping wavelength band and passing signals deflected by other deflectors in the second stack.

38. A method of Claim 37 wherein at least one second stack deflectors' wavelength band is located between two first stack deflectors' wavelength bands and at least one first stack deflectors' wavelength band is located between two second stack deflectors' wavelength bands.

39. A method of Claim 32 wherein individual deflectors in the first stack pass signals deflected by other deflectors in the first stack.

40. A method of Claim 32 further comprising:

coupling a first polarization beam splitter to the aperture structure and the first stack;

coupling a signal path to the first polarization beam splitter; and

positioning a first linear/circular polarization device so that electromagnetic signals deflected by at least one of the deflectors in the first stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the first

linear/circular polarization device and, after being deflected, first pass through the first linear/circular polarization device and then pass through the first polarization beam splitter, the deflectors in the first stack being reflectors.

41. A method of Claim 40 further comprising:

receiving by the signal path from a first transmission path at least one signal carrying communications transmitted by the device; and

receiving by a first reception path from the signal path at least one signal carrying communications received by the device, the electromagnetic signals deflected by at least one of the deflectors in the first stack carrying communications transmitted by the device and communications received by the device.

42. A method of Claim 40 wherein at least one of the deflectors in the first stack is movable.

43. A method of Claim 40 further comprising:

using a second stack of deflectors to deflect respective electromagnetic signals passing through the aperture structure at respective angles, the individual deflectors in the first stack passing signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack, the deflectors in the second stack being reflectors; and

positioning a second linear/circular polarization device so that electromagnetic signals deflected by at least one of the deflectors in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the second linear/circular polarization device and, after being deflected, first pass through

the second linear/circular polarization device and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first linear/circular polarization device being substantially orthogonal, within the signal path, to the direction of polarization of the electromagnetic signals passing through the second linear/circular polarization device.

44. A method of Claim 43 further comprising:

coupling a second polarization beam splitter to the signal path;

coupling a first polarized path to the second polarization beam splitter; the first polarized path receiving from a first transmission path at least one signal carrying communications transmitted by the device and a first reception path receiving from the first polarized path at least one signal carrying communications received by the device; and

coupling a second polarized path to the second polarization beam splitter; the second polarized path receiving from a second transmission path at least one signal carrying communications transmitted by the device and a second reception path receiving from the second polarized path at least one signal carrying communications received by the device.

45. A method of Claim 32 further comprising:

coupling a first polarization beam splitter to the aperture structure and the first stack;

coupling a signal path to the first polarization beam splitter; and

positioning a first polarization rotation device so that electromagnetic signals deflected by at least one of the deflectors in the first stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the first polarization rotation

device and, after being deflected, first pass through the first polarization rotation device and then pass through the first polarization beam splitter, the deflectors in the first stack being reflectors.

46. A method of Claim 45 further comprising:

receiving by the signal path from a first transmission path at least one signal carrying communications transmitted by the device, and

receiving by a first reception path from the signal path at least one signal carrying communications received by the device, the electromagnetic signals deflected by at least one of the deflectors in the first stack carrying communications transmitted by the device and communications received by the device.

47. A method of Claim 45 wherein at least one of the deflectors in the first stack is movable.

48. A method of Claim 45 further comprising:

deflecting by a second stack of deflectors respective electromagnetic signals passing through the aperture structure at respective angles, the individual deflectors in the first stack passing signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack, the deflectors in the second stack being reflectors; and

positioning a second polarization rotation device so that electromagnetic signals deflected by at least one of the deflectors in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the second polarization rotation device and, after being deflected, first pass through the

second polarization rotation device and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first polarization rotation device being substantially orthogonal, within the signal path, to the direction of polarization of the electromagnetic signals passing through the second polarization rotation device.

49. A method of Claim 48 further comprising:

coupling a second polarization beam splitter to the signal path;

coupling a first polarized path to the second polarization beam splitter; the first polarized path receiving from a first transmission path at least one signal carrying communications transmitted by the device and a first reception path receiving from the first polarized path at least one signal carrying communications received by the device; and

coupling a second polarized path to the second polarization beam splitter; the second polarized path receiving from a second transmission path at least one signal carrying communications transmitted by the device and a second reception path receiving from the second polarized path at least one signal carrying communications received by the device.

50. A method of Claim 45 further comprising:

deflecting respective electromagnetic signals passing through the aperture structure at respective angles by a second stack of deflectors , the individual deflectors in the first stack passing signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack, the deflectors in the second stack being reflectors; and

positioning a linear/circular polarization device so that electromagnetic signals deflected by at least one of the deflectors in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and

entering the first polarization beam splitter, and, before being deflected, first pass through the first polarization beam splitter and then pass through the linear/circular polarization device and, after being deflected, first pass through the linear/circular polarization device and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first polarization rotation device being substantially orthogonal, within the signal path, to the direction of polarization of the electromagnetic signals passing through the linear/circular polarization device.

51. A method of Claim 32 further comprising deflecting respective electromagnetic signals passing through the aperture structure at respective angles by a second stack of deflectors, at least one deflector in the second stack passing at least one signal deflected by another deflector in the second stack.

52. A method of Claim 51 wherein individual deflectors in the first stack pass signals deflected by other deflectors in the first stack and individual deflectors in the second stack passing signals deflected by other deflectors in the second stack.

53. A method of Claim 51 further comprising coupling a polarization beam splitter to the first stack, second stack, and the aperture structure.

54. A method of Claim 29 wherein electromagnetic signals deflected by at least one of the deflectors carry communications transmitted by the device and communications received by the device.

55. A method of Claim 29 wherein the aperture structure is a telescope.

56. A method for deflecting electromagnetic waves comprising:

deflecting electromagnetic waves within a first wavelength band and passing electromagnetic waves within a second wavelength band by a first deflector; and

deflecting electromagnetic waves within a second wavelength band by a second deflector, the second deflector positioned to receive the electromagnetic waves passed through the first deflector.

57. A communication device comprising:

aperture means; and

means for deflecting respective electromagnetic signals of respective wavelengths at respective angles, the electromagnetic signals passing through the aperture means.

58. A device of Claim 57 further comprising means for linear/circular polarization between at least one of means for deflecting and the aperture means.

59. A device of Claim 57 wherein at least one of the means for deflecting is movable.

60. A device of Claim 57 wherein the means for deflecting form a first stack, each means for deflecting in the first stack passing a signal deflected by another means for deflecting in the first stack.

61. A device of Claim 60 wherein at least one means for deflecting in the first stack deflects substantially all signals within a wavelength band.

62. A device of Claim 61wherein individual means for deflecting in the first stack deflect substantially all signals each within its respective non-overlapping

wavelength band and pass signals deflected by other means for deflecting in the first stack.

63. A device of Claim 62 wherein at least one of the means for deflecting in the first stack is movable and reflects signals at nearly normal incidence.

64. A device of Claim 62 wherein the means for deflecting in the first stack are means for reflecting.

65. A device of Claim 62 further comprising a second stack of means for deflecting respective electromagnetic signals passing through the aperture structure at respective angles, individual means for deflecting in the second stack deflecting substantially all signals each within its respective non-overlapping wavelength band and passing signals deflected by other means for deflecting in the second stack.

66. A device of Claim 65 wherein a wavelength band of at least one means for deflecting of the second stack is located between wavelength bands of two means for deflecting of the first stack and a wavelength band of at least one means for deflecting of the first stack is located between wavelength bands of two means for deflecting of the second stack.

67. A device of Claim 60 wherein individual means for deflecting in the first stack pass signals deflected by other means for deflecting in the first stack.

68. A device of Claim 60 further comprising:

first means for beam splitting according to polarization coupled to the aperture means and the first stack;

means for conveying signals coupled to the first means for beam splitting; and

first means for linear/circular polarization, positioned so that electromagnetic signals deflected by at least one of the means for deflecting in the first stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first means for beam splitting, and, before being deflected, first pass through the first means for beam splitting and then pass through the first linear/circular polarization device and, after being deflected, first pass through the first means for linear/circular polarization and then pass through the first means for beam splitting, the means for deflecting in the first stack being means for reflecting.

69. A device of Claim 68 further comprising:

first means for conveying transmission signals; and

first means for conveying received signals, the means for conveying signals receiving from the first means for conveying transmission signals at least one signal carrying communications transmitted by the device and the first means for conveying received signals receiving from the means for conveying signals at least one signal carrying communications received by the device, the electromagnetic signals deflected by at least one of the means for deflecting in the first stack carrying communications transmitted by the device and communications received by the device.

70. A device of Claim 68 wherein at least one of the means for deflecting in the first stack is movable.

71. A device of Claim 68 further comprising:

a second stack comprising means for deflecting respective electromagnetic signals passing through the aperture means at respective angles,

the individual means for deflecting in the first stack passing signals deflected by other means for deflecting in the first stack and individual means for deflecting in the second stack passing signals deflected by other means for deflecting in the second stack, the means for deflecting in the second stack being means for reflecting; and

second means for linear/circular polarization, positioned so that electromagnetic signals deflected by at least one of the means for deflecting in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first means for beam splitting, and, before being deflected, first pass through the means for beam splitting and then pass through the second means for linear/circular polarization and, after being deflected, first pass through the second means for linear/circular polarization and then pass through the first means for beam splitting, the direction of polarization of the electromagnetic signals passing through the first means for linear/circular polarization being substantially orthogonal, within the means for conveying signals, to the direction of polarization of the electromagnetic signals passing through the second means for linear/circular polarization.

72. A device of Claim 71 further comprising:

second means for beam splitting according to polarization coupled to the means for conveying signals;

first means for conveying transmission signals;

first means for conveying received signals;

second means for conveying transmission signals;

second means for conveying received signals;

first means for conveying polarized signals coupled to the second means for beam splitting; the first means for conveying polarized signals receiving from the first means for conveying transmission signals at least one signal carrying communications transmitted by the device and the first means for

conveying received signals receiving from the first means for conveying polarized signals at least one signal carrying communications received by the device; and

second means for conveying polarized signals coupled to the second means for beam splitting; the second means for conveying polarized signals receiving from the second means for conveying transmission signals at least one signal carrying communications transmitted by the device and the second means for conveying received signals receiving from the second means for conveying polarized signals at least one signal carrying communications received by the device.

73. A device of Claim 60 further comprising:

a first means for beam splitting according to polarization coupled to the aperture means and the first stack;

a means for conveying signals coupled to first the means for beam splitting; and

a first means for polarization rotation, positioned so that electromagnetic signals deflected by at least one of the means for deflecting in the first stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first means for beam splitting, and, before being deflected, first pass through the first means for beam splitting and then pass through the first means for polarization rotation and, after being deflected, first pass through the first means for polarization rotation and then pass through the first means for beam splitting, the means for deflecting in the first stack being means for reflecting.

74. A device of Claim 73 further comprising:

first means for conveying transmission signals; and

first means for conveying received signals, the means for conveying signals receiving from the first means for conveying transmission signals at least

one signal carrying communications transmitted by the device and the first means for conveying received signals receiving from the signal path at least one signal carrying communications received by the device, the electromagnetic signals deflected by at least one of the means for deflecting in the first stack carrying communications transmitted by the device and communications received by the device.

75. A device of Claim 73 wherein at least one of the means for deflecting in the first stack is movable.

76. A device of Claim 73 further comprising:

a second stack comprising means for deflecting respective electromagnetic signals passing through the aperture means at respective angles, the individual means for deflecting in the first stack passing signals deflected by other means for deflecting in the first stack and individual means for deflecting in the second stack passing signals deflected by other means for deflecting in the second stack, the means for deflecting in the second stack being means for reflecting; and

a second means for polarization rotation, positioned so that electromagnetic signals deflected by at least one of the means for deflecting in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first means for beam splitting, and, before being deflected, first pass through the first means for beam splitting and then pass through the second means for polarization rotation and, after being deflected, first pass through the second means for polarization rotation and then pass through the first polarization beam splitter, the direction of polarization of the electromagnetic signals passing through the first means for polarization rotation being substantially orthogonal, within the means for conveying signals, to the

direction of polarization of the electromagnetic signals passing through the second means for polarization rotation.

77. A device of Claim 76 further comprising:

second means for beam splitting according to polarization coupled to the signal path;

first means for conveying transmission signals;

first means for conveying received signals;

second means for conveying transmission signals;

second means for conveying received signals;

first means for conveying polarized signals coupled to the second means for beam splitting; the first means for conveying polarized signals receiving from the first means for conveying transmission signals at least one signal carrying communications transmitted by the device and the first means for conveying received signals receiving from the first means for conveying polarized signals at least one signal carrying communications received by the device; and

second means for conveying polarized signals coupled to the second means for beam splitting; the second means for conveying polarized signals receiving from the second means for conveying transmission signals at least one signal carrying communications transmitted by the device and the second means for conveying received signals receiving from the second means for conveying polarized signals at least one signal carrying communications received by the device.

78. A device of Claim 73 further comprising:

a second stack comprising means for deflecting respective electromagnetic signals passing through the aperture means at respective angles, the individual means for deflecting in the first stack passing signals deflected by

other means for deflecting in the first stack and individual means for deflecting in the second stack passing signals deflected by other means for deflecting in the second stack, the means for deflecting in the second stack being means for reflecting; and

means for linear/circular polarization, positioned so that electromagnetic signals deflected by at least one of the means for deflecting in the second stack, are deflected at nearly normal angle, are linearly polarized when leaving and entering the first means for beam splitting, and, before being deflected, first pass through the first means for beam splitting and then pass through the means for linear/circular polarization and, after being deflected, first pass through the means for linear/circular polarization and then pass through the first means for beam splitting, the direction of polarization of the electromagnetic signals passing through the first means for polarization rotation being substantially orthogonal, within the means for conveying signals, to the direction of polarization of the electromagnetic signals passing through the means for linear/circular polarization.

79. A device of Claim 60 further comprising a second stack comprised of means for deflecting respective electromagnetic signals passing through the aperture means at respective angles, at least one means for deflecting in the second stack passing at least one signal deflected by another means for deflecting in the second stack.

80. A device of Claim 79 wherein individual means for deflecting in the first stack pass signals deflected by other means for deflecting in the first stack and individual means for deflecting in the second stack passing signals deflected by other means for deflecting in the second stack.

81. A device of Claim 79 further comprising means for beam splitting according to polarization coupled to the first stack, second stack, and the aperture means.

82. A device of Claim 57 wherein electromagnetic signals deflected by at least one of the means for deflecting carry communications transmitted by the device and communications received by the device.

83. A device of Claim 57 wherein the aperture means is a telescope.

84. A device for deflecting electromagnetic waves comprising:

first means for deflecting electromagnetic waves within a first wavelength band and passing electromagnetic waves within a second wavelength band; and

second means for deflecting electromagnetic waves within a second wavelength band, the second means for deflecting positioned to receive the electromagnetic waves passed through the first means for deflecting.